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and *Naias* and buds, etc., of wild celery are the plant items, and chironomid and hydrophilid larvæ the animal substances.

"Four other species of ducks are represented by single stomachs. The Goldeneye contained seeds of pondweed, water-lily, bayberry, and bur-reed, buds and roots of wild cleery, and bits of water boatmen, and dragonfly nymphs. Animal matter 6 per cent; vegetable, 94; mineral 40 of the gross contents.

"The Canvasback had eaten seeds of bur-reed and wild celery buds. Vegetable matter, 100 per cent; mineral 60. The Hooded Merganser contained dragonfly nymphs and caddis larvæ. Animal matter, 100 per cent; mineral 20. The Blue-winged Teal had many young snails, various insects, and seeds of bur-reed, pondweed, smartweed, and various sedges and grasses. Animal matter, 88 per cent; vegetable, 12 per cent; mineral, 8 per cent."

THE BIRDS OF KERRVILLE, TEXAS, AND VICINITY.

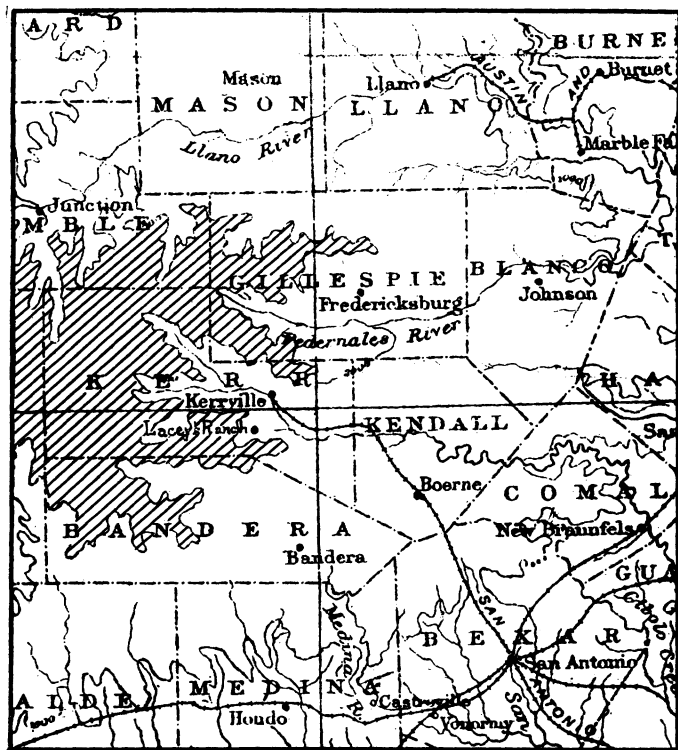
BY HOWARD LACEY.

THE following list contains the observations I have made at my ranch where I have lived since 1882. Being always in the woods and fields, I have had a good chance to get acquainted with the natural history of the county. The ranch is seven miles southwest of Kerrville, in Kerr County, and about fifty-five miles northwest of San Antonio. It consists for the most part of rough hills and still rougher hollows and cañons, lying at an elevation of about 1800 feet, between the Guadalupe River and its tributary Turtle Creek. It is well watered by small springs, but there is no considerable body of water nearer than the river.

The timber near Kerrville is mostly pecan, live-oak, hackberry and walnut in the valleys, with some fine cypress along the main river; on the hills occur cedar (*Juniperus*), shin-oak and Spanish oak. In the eastern and northwestern parts of the county there is a good deal of mesquite and the same sort of chaparral as occurs

near San Antonio, and several forms of animal life are common there that we seldom or never see near Kerrville.

Kerr County is especially interesting zoologically because it marks the most southeastern extension in Texas of the Upper Austral Life Zone, which occurs here as a narrow peninsula extending into the county from the northwest and surrounded on three



Map of Kerr County, Texas. Shaded portion indicates Upper Austral Life Zone; unshaded portion = Lower Austral Life Zone.

sides by the Lower Austral Life Zone to which belongs the larger part of the plants and animals of the county.

Among the characteristic birds of the Lower Austral Zone that are here close to their northern or northwestern limit may be men-

tioned: *Anhinga anhinga*, *Mycteria americana*, *Florida cærulea*, *Ionornis martinicus*, *Scardafella inca*, *Catharista urubu*, *Parabuteo unicinctus harrisi*, *Buteo abbreviatus*, *Polyborus cheriway*, *Centurus aurifrons*, *Pyrocephalus rubinus mexicanus*, *Passerina ciris*, *Bæolophus atricristatus sennetti*, *Auriparus flaviceps*.

The intrusion of the Upper Sonoran Life Zone results in two interesting developments of the bird life. The first is the remaining here through the summer of several Upper Sonoran species, which here find the extreme southwestern limit of their breeding range: *Sayornis phæbe*, *Passerina cyanea*, *Lanivireo flavifrons*, *Mniotilta varia*, *Dendroica dominica albilora*, *Oporornis formosus*. The second result is the occurrence of several western species that rarely if ever extend further eastward: *Callipepla squamata*, *Cyrtonyx montezumæ mearnsi*, *Otus asio aikeni*, *Bubo virginianus pallescens*, *Coccyzus americanus occidentalis*, *Melanerpes formicivorus*, *Tyrannus verticalis*, *Aphelocoma texana*, *Corvus cryptoleucus*, *Icterus bullocki*, *Amphispiza bilineata*, *Aimophila ruficeps eremæca*, *Pipilo fuscus mesoleucus*, *Passerina amæna*, *Salpinctes obsoletus*, *Catherpes mexicanus conspersus*.

The list contains the usual percentage of accidental visitants: *Phalacrocorax vigua mexicanus*, *Dendrocygna autumnalis*, *Sphyrapicus thyroideus*, *Tyrannus melancholicus couchi*, *Zamelodia melanocephala*, *Hesperiphona vespertina*, the last of which is a new bird for the State.

List of Species.

1. **Podilymbus podiceps.** PIED-BILLED GREBE.—Occasional in winter on the Guadalupe River. One was brought to me on August 29, 1910.

2. **Larus franklini.** FRANKLIN'S GULL.—On April 26, 1909, a severe hail storm passed down Turtle Creek (a tributary of the Guadalupe) at about 9 p. m. and did much damage, killing some livestock and many small animals and birds. Several Franklin Gulls were picked up dead and one was caught alive by a friend. I had not seen the bird here before, but saw a small flock on May 17, 1910.

3. **Hydrochelidon nigra surinamensis.** BLACK TERN.—A Tern seen nearly every year in late summer and early fall along the Guadalupe belongs probably to this species; I have never been able to procure a specimen. Saw one August 23, 1910.

4. **Anhinga anhinga.** WATER-TURKEY.— Not at all common. Sometimes breeds on the Guadalupe and its tributaries.

5. **Phalacrocorax vigua mexicanus.** MEXICAN CORMORANT.— One shot on the south fork of the Llano River, July 30, 1899.

6. **Mergus americanus.** MERGANSER.— Occasional in winter on the Guadalupe River.

7. **Mergus serrator.** RED-BREASTED MERGANSER.— Occasional in winter on the Guadalupe. In 1903 I saw a flock of about a dozen on the river just above Kerrville, as late as the first of May.

8. **Lophodytes cucullatus.** HOODED MERGANSER.— Occasional in winter.

9. **Anas platyrhynchos.** MALLARD.— Fairly common in winter. On October 31, 1883, there were thousands of these birds on the divide between Turtle Creek and the Guadalupe; it was a dull misty day and they were feeding on the post oak and blackjack acorns of which we had a heavy crop that year. I have several times since seen them with their crops full of acorns.

10. **Chaulelasmus streperus.** GADWALL.— Fairly common in winter for a duck in a rather dry country. On May 17, 1905, a mixed flock of Gadwalls and Widgeons settled on a small pond in a field near the ranch house. We killed five or six of them and among them a female Gadwall that had plucked all the *outer* half of the down from her breast. She contained no eggs but had evidently nested somewhere that spring. This circumstance shows that some species of ducks would nest here if they had adequate protection.

11. **Mareca americana.** BALDPATE.— Not uncommon in winter. Seen here as late as May 19.

12. **Nettion carolinense.** GREEN-WINGED TEAL.— Occasional in winter.

13. **Querquedula discors.** BLUE-WINGED TEAL.— Common in winter; the earliest of the ducks to come back to us in August. Has been known to breed near San Antonio and would breed here if protected.

14. **Spatula clypeata.** SHOVELLER.— Occasional in winter.

15. **Dafila acuta.** PINTAIL.— Occasional in winter.

16. **Aix sponsa.** WOOD DUCK.— Formerly quite common, now very scarce; nested on the head of Kelly Creek on 1883-84; have not seen one for some years.

17. **Marila affinis.** LESSER SCAUP DUCK.— Not uncommon in winter.

18. **Erismatura jamaicensis.** RUDDY DUCK.— Have seen one that was shot on the Guadalupe River.

19. **Anser albifrons gambeli.** WHITE-FRONTED GOOSE.— A bird killed and described by a friend probably belonged to this species. Geese very seldom settle anywhere in this county, but pass on to the coast prairies in the autumn, and towards the north in the spring.

20. **Branta canadensis.** CANADA GOOSE.— Most of the geese that

pass in spring and autumn belong probably to some form of this species. Earliest spring records, March 1; latest, April 11. Earliest autumn record, September 27.

21. ***Dendrocygna autumnalis***. BLACK-BELLIED TREE-DUCK.—Saw a *Dendrocygna*, probably this species, when fishing on Turtle Creek on June 24, 1906. I was several times within easy gunshot of the bird. This is two hundred miles north of the normal range of the species.

22. ***Mycteria americana***. WOOD IBIS.—Not common; saw five of these birds at the ranch on September 23, 1900; a flock of fifty or more frequented Turtle Creek from late in July, 1902, until the middle of August.

23. ***Botaurus lentiginosus***. BITTERN.—The rather rapid mountain streams of this county are not well adapted to the needs of the bittern, but one is occasionally noted. One was shot in the little irrigation ditch at the ranch on October 28, 1908.

24. ***Ardea herodias*** subsp.? GREAT BLUE HERON.—Not uncommon; a few pairs breed in the county, usually by themselves. Early in April, 1893, about ten pairs were nesting together in the cedar trees (*Juniperus*) that overhang the steep cliffs of a ridge called the "Devil's Backbone" on Johnson Fork of the Guadalupe. All the nests that I examined contained four eggs, and the birds remained on the nests until we were close to them. I have not heard of the birds nesting there since that date.

25. ***Florida cærulea***. LITTLE BLUE HERON.—In 1882 and 1883 three or four pairs nested in a tall cypress tree at the mouth of Kelly Creek on the Guadalupe. A flood or a high wind knocked down the tree and I know of no other nesting place. The birds are frequently seen in July and August along the Guadalupe and its larger creeks, most of them in the white plumage. On July 12, 1901, on the Guadalupe, I saw one little blue heron and three little white ones, and with them was a white heron about one third larger than the others.

26. ***Butorides virescens***. GREEN HERON.—Rather common for a heron and breeds here regularly. Earliest spring record March 31, 1896; average for fifteen years about April 19. Nest with four fresh eggs May 6, 1897.

27. ***Nycticorax nycticorax nævius***. BLACK-CROWNED NIGHT HERON.—Have seen a night heron on two or three occasions, probably this species, but many years ago; and I can find no record of it except that I have it on my list.

28. ***Grus mexicana***. SANDHILL CRANE.—Passes over commonly in spring and autumn but very rarely settles in this rough hilly country. One was shot on Turtle Creek some years ago, but was probably a weak or crippled bird. Earliest spring record for 15 years, March 1; average, April 1. Earliest autumn record, September 16; latest December 25; average, October 10.

29. ***Rallus virginianus***. VIRGINIA RAIL.—When fishing with Mr. H. P. Attwater on Turtle Creek September 14, 1896, we watched a rail feeding on the other side of the creek which was about 40 feet wide in that

place; we both came to the conclusion that the bird belonged to this species.

30. **Porzana carolina.** SORA.— On the night of September 20, 1896, a bird struck the tin roof of the ranch house and rolled off on to the ground; we went out with a lantern and picked up a Sora Rail: it possibly mistook the roof for a pond.

31. **Ionornis martinicus.** PURPLE GALLINULE.— May 20, 1909, a boy brought to Kerrville two Coots and a Purple Gallinule that he had shot on the Guadalupe.

32. **Gallinula galeata.** FLORIDA GALLINULE.— Many years ago I had several of these birds that had been shot on the Guadalupe and I have occasionally heard of them since.

33. **Fulica americana.** COOT.— Not uncommon in spring and autumn; would breed in suitable places if allowed to do so.

34. **Recurvirostra americana.** AVOCET.— Occasional: seen on September 3, 1902, and July 22, 1906.

35. **Himantopus mexicanus.** BLACK-NECKED STILT.— Occasional: seen on August 31, 1889.

36. **Gallinago delicata.** WILSON'S SNIBE.— Not uncommon in winter; it seeks the small warm springs in hard weather. Earliest record, September 13; average about October 10; have seen it as late as March 13.

37. **Pelidna alpina sakhalina.** RED-BACKED SANDPIPER.— A friend gave me two of these birds that he had shot out of a small flock along the Guadalupe on August 8, 1897.

38. **Totanus melanoleucus.** GREATER YELLOW-LEGS.— Occasional, in company with *T. flavipes*.

39. **Totanus flavipes.** YELLOW-LEGS.— Not uncommon on migration; latest spring date May 15; earliest date of return, July 17.

40. **Helodromas solitarius** subsp. SOLITARY SANDPIPER.— Quite common in migration, April 12 to May 15; have seen it returning July 15.

41. **Actitis macularia.** SPOTTED SANDPIPER.— Quite common in migration and probably breeds as it has been noted in June on several occasions.

42. **Numenius americanus.** LONG-BILLED CURLEW.— Frequently seen or heard passing overhead in August and September.

43. **Charadrius dominicus.** GOLDEN PLOVER.— Some time in the autumn of 1882 I flushed a flock of plover on a fairly open place on the divide, which I feel sure belonged to this species. I was just out from England where I was well acquainted with the European form: have not seen a single specimen since.

44. **Oxyechus vociferus.** KILLDEER.— Common all the year; nests about the middle of March. On March 24, 1896, I was driving a flock of goats to their pen and noticed that at a certain point they divided into two flocks; I walked up to the place expecting to find a rattlesnake, and found instead a killdeer standing over her eggs with outspread wings and scolding vigorously.

45. ***Colinus virginianus texanus***. TEXAS BOB-WHITE.—Common resident, getting scarcer for the last few years although comparatively few get shot at any distance from the small towns. Armadillos and hogs break up a good many nests. I have (on three occasions only) heard the male bird (when nesting) give a curious little chirping crow on being flushed. After the breeding season is over the well-known call "Bob-white" is not heard until the middle of the next April when they begin to pair again; I have listened for the call for many years and never heard it before April 16; the average date is about April 20. They usually try to raise two broods here and I have found newly hatched young in October. I once saw a hen quail fighting a Road-runner and she finally succeeded in driving it away from her baby brood.

46. ***Callipepla squamata***. SCALED QUAIL.—Have seen this bird on the head of Johnson Fork of the Llano River in the northwest corner of this county; it occasionally breeds there but is rare and the locality is nearly at the southeastern limit of the range of the typical form of the species.

47. ***Cyrtonyx montezumæ mearnsi***. MEARNS'S QUAIL.—Formerly fairly common in the western part of the county; have seen it at the ranch, 7 miles southwest of Kerrville, and on one occasion at least it has nested there. It is getting to be quite rare.

48. ***Tympanuchus americanus***. PRAIRIE CHICKEN.—The oldest inhabitant had never seen a Prairie Chicken in this county until late in November, 1885, when one or two were reported as having been seen west of Kerrville. By the middle of December of that year they were very common at the ranch and on the dry headers of the Guadalupe and Llano rivers, and were a welcome addition to the ranch fare from that time until early in April, 1886, when they all left us and have not been seen here since. It is too late now to determine the species and they may have been the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*).

49. ***Meleagris gallapavo intermedia***. RIO GRANDE TURKEY.—Formerly very common, but getting rather scarce now that the shot gun is becoming almost as common a piece of furniture as the rifle in the ranchman's house. These birds are as foolishly tame when about half grown as they are wild and able to take care of themselves when fully mature: if they were not shot at until fully grown and allowed to roost in peace at night, there is no reason why we should not have them always with us. Armadillos and skunks sometimes roll the eggs out of the nests, and they have plenty of enemies besides the boy with the shotgun. The hen turkey as a rule begins to lay in March and I have seen quite small young ones early in April. If their first nest is broken up they will try again and I have found a nest with seven fresh eggs in it as late as June 4.

50. ***Zenaidura macroura carolinensis***. MOURNING DOVE.—Very common in summer, and some few remain all the winter. After a day or two of really cold weather they get very weak and many of them die. They come to the fodder stacks in hard weather with the snowbirds and

sparrows and while the little birds are quite brisk and cheerful, the doves are hardly able to get out of one's way.

51. **Melopelia asiatica.** WHITE-WINGED DOVE.— One of these birds was killed in a field near Kerrville by a friend of mine on November 25, 1910. This is the most northwestern record for the State. I have heard that it has also been killed on one or two occasions at Boerne in Kendall County.

52. **Scardafella inca.** INCA DOVE.— Rather common in San Antonio and Kerrville and I have twice seen it at the ranch. It is a bird of the town rather than the open country and is about as confiding as the sparrows. It here reaches its extreme northeastern range in the State.

53. **Cathartes aura septentrionalis.** TURKEY VULTURE.— Very common; the majority leave in winter but a few remain all the year. Nests in caves like the Black Vulture, but as a rule nearly a month later than that bird.

54. **Catharista urubu.** BLACK VULTURE.— Very common resident; nests in caves, which are numerous in this limestone country. Eggs are laid as a rule during the first week in March. The young feign death when disturbed and I have seen an old one with the tip of its wing broken do the same thing.

55. **Ictinia mississippiensis.** MISSISSIPPI KITE.— Have not seen it in this county, but had one of a pair shot about 100 miles northwest of here in May, 1904, near the extreme western limit of the species.

56. **Circus hudsonius.** MARSH HAWK.— Fairly common in winter, in the more open parts of the country; usually arrives early in September. Have not heard of it as breeding anywhere in this county.

57. **Accipiter velox.** SHARP-SHINNED HAWK.— Fairly common in winter. Does not breed here.

58. **Accipiter cooperi.** COOPER'S HAWK.— Common all the year. Nests early in April.

59. **Parabuteo unicinctus harrisi.** HARRIS'S HAWK.— Occasional. Have sometimes seen it in autumn and spring.

60. **Buteo borealis.** RED-TAILED HAWK.— The bird is (for a large hawk) a common resident. Nests in March on a bluff or in a tree. This bird is rather frequently seen with a good deal of white about it. One almost pure white stayed near the ranch for several years. I shot one that had much white on the wings and back; and a pure white bird, with black eyes was kept for years as a pet in a saloon at Kerrville in the early eighties.

61. **Buteo lineatus** subsp.? RED-SHOULDERED HAWK.— Not rare, but formerly much more common than it is now. Breeds in tall timber along the river and creeks.

62. **Buteo abbreviatus.** ZONE-TAILED HAWK.— A not unfrequent visitor in August and September. I see or hear of one or two almost every year. This is near the extreme northern limit of the species.

63. **Buteo swainsoni.** SWAINSON'S HAWK.— Large flocks pass over here in spring and autumn and are locally called Grasshopper Hawks.

Formerly they were in larger flocks than we see now. In the spring they come from April 3 to 27; in autumn from September 15 to October 12.

64. **Falco columbarius.** PIGEON HAWK.—Fairly common in winter and are rather given to stealing chickens.

65. **Falco sparverius.** SPARROW HAWK.—Very common in winter, generally arriving in August. I have no record of this bird breeding in the county but obtained a female on July 3, 1905, that had evidently been recently brooding on eggs. Saw one on July 5, 1908.

66. **Polyborus cheriway.** AUDUBON'S CARACARA.—A rather rare visitor along the Guadalupe valley.

67. **Pandion haliaëtus carolinensis.** OSPREY.—One or two of these birds are seen every summer along the Guadalupe, but I have no record of a nest. Have seen them as early as April 24 and as late as November 3.

68. **Aluco pratincola.** BARN OWL.—Not common. A pair bred many years ago in an old rock building at Kerrville, and I have seen the species once or twice along some of the bluffs.

69. **Asio wilsonianus.** LONG-EARED OWL.—I shot one of a pair of these birds on April 4, 1898; this is the only record I have.

70. **Strix varia** subsp.? BARRED OWL.—Often heard than seen; probably fairly common for an owl and resident.

71. **Otus asio aikenii.** AIKEN'S SCREECH OWL.—Very common. Nests as a rule early in April, and on warm days may be heard at midday in February and March. A pair of these birds tried to breed in a small heating stove in the house in 1896 and again in 1897, coming down the stovepipe which had a double elbow and laying in the stove: they made too much noise scratching up and down the stovepipe and so had to be discouraged. They often lay their eggs in houses put up for the martins or for pigeons and I think destroy the young birds. In May, 1908, a pair nested in the martin box at the ranch. Finding a dead martin under the box, I got a shotgun and sent a friend up the pole to investigate: an owl flew out and was promptly shot and then my friend found three young owls in the box, and brought them down, and put them under a live-oak tree in the yard. The remaining parent fed the young for a night or two on the ground, bringing them, among other things, two or three sphinx moths and a crawfish, and then persuaded them to climb into the tree. The next evening my friend was smoking after supper and the owl knocked his pipe out of his mouth. The owl next attacked the lady of the house as she was bringing in the milk, and as a final exploit struck me full in the face as I was standing near the tree, using force enough to draw blood. The next morning the whole owl family was put to death.

72. **Bubo virginianus pallescens.** WESTERN HORNED OWL.—For so large an owl, a common resident, nesting early in the spring in a cave in a bluff, a deserted Red-tailed Hawk's nest, or on one occasion on the flattened top of a squirrel's nest. Small rabbits seem to be their principal food, but occasionally they harry the hen roosts and I have known them to kill young wild turkeys, even when half grown.

73. **Speotyto cunicularia hypogæa.** BURROWING OWL.—Seen on migration in spring and autumn but does not breed here. March 4 to April 5 and September 23 to October 10.

74. **Geococcyx californianus.** ROAD-RUNNER.—Common resident. Nests in March and April. Eggs usually 5 to 6, on one occasion 7. Sometimes one finds eggs in various stages of incubation in the same nest, but not always, as I have found 6 eggs all fresh. The Road-runner makes a loud chuckling crowing noise in the spring, and also a cooing noise that might easily be mistaken for the voice of some kind of dove; it also makes a sort of purring sound in its throat, *perrp perrp perrp*.

75. **Coccyzus americanus occidentalis.** CALIFORNIA CUCKOO.—Common summer resident; average date of arrival April 20; earliest April 9. Usually leaves in September but have seen it as late as October 19, when the fall webworm has been particularly abundant. The western form reaches here its most eastern extension.

76. **Ceryle alcyon.** BELTED KINGFISHER.—Fairly common resident.

77. **Ceryle americana septentrionalis.** TEXAS KINGFISHER.—Fairly common, breeds along the Guadalupe and its tributaries, also along the Llano and Medina rivers. Took two eggs on May 29, 1907, from a nest on Turtle Creek. The nest hole was about 2½ feet below the top of a little adobe bluff, slanting slightly upwards for about a foot, then turning to the right for about another foot. The burrow was enlarged at the end and the eggs were on a bed of small fish bones and scales, about half a pint of this material.

78. **Dryobates scalaris bairdi.** TEXAS WOODPECKER.—Our commonest woodpecker. Took 4 eggs on April 14, 1902. This bird *drums* on a dead limb of a tree at any time of year, if the weather is fine.

79. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.—Common in winter. Arrives about the middle of October.

80. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.—Shot a male at the ranch on Turtle Creek October 24, 1898. This is the most eastern record for the State.

81. **Phlœotomus pileatus.** PILEATED WOODPECKER.—A large black "Woodcock" used to be seen occasionally many years ago frequenting the tall cypress trees that fringe the Guadalupe River. From the description it probably belonged to this species. I never saw the bird myself.

82. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.—Formerly not uncommon in winter, and possibly once nested in a post oak flat above Kerrville on the Guadalupe. The trees are all gone now and the place is under cultivation. I have not seen one of the birds for several years.

83. **Melanerpes formicivorus.** ANT-EATING WOODPECKER.—Fairly common in winter in the post oak trees along the Medina-Guadalupe divide, and breeds. This is considerably the most eastern record for the species.

84. **Centurus aurifrons.** GOLDEN-FRONTED WOODPECKER.—Not very common now, but resident all the year.

85. **Colaptes cafer collaris.** RED-SHAFTED FLICKER.—Common in winter. Earliest autumn record September 20 (twice). I have shot flickers with red and also with black moustaches but have never seen any that were not red under the wings.

86. **Antrostomus carolinensis.** CHUCK-WILLS-WIDOW.—Common breeder; earliest date of arrival April 3; average April 13. Have found fresh eggs April 30.

87. **Antrostomus vociferus.** WHIP-POOR-WILL.—I have only four records for this bird — April 18 and 23, and September 15 and 19.

88. **Phalænoptilus nuttalli.** POOR-WILL.—Common. A few of these birds must sometimes spend the winter with us as I have heard them every month in the year except November. They usually arrive early in February. The latest date of arrival I have (for twenty years) is March 13. I have found eggs as early as March 22.

89. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.—Common breeder. Earliest record, April 12; next earliest, April 23; average, about April 29.

90. **Chætura pelagica.** CHIMNEY SWIFT.—Have only seen them on two occasions, April 29, 1894, and May 8, 1896.

91. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.—Seen every year in April on the buck-eye blooms. I do not think it breeds here but am not quite sure about it. I have never seen a *male* hummer near a nest.

92. **Archilochus alexandri.** BLACK-CHINNED HUMMINGBIRD.—Common. Earliest arrival, March 11; average date of arrival, about March 20. Latest in autumn, October 26. On April 1, 1900, I watched a hummer starting the foundation of her nest; the next day she had nearly finished the wall of the nest and she had it completed by the 6th and was sitting on the 9th of the month. On April 30 I watched her feeding the young ones; the little fellows stretched their necks to the fullest extent and the old bird put her bill full length down their throats. The young had left the nest on the morning of May 11. The male bird never came near the nest. A new nest is frequently built on the top of an old one.

93. **Muscivora forficata.** SCISSOR-TAILED FLYCATCHER.—Common, especially in the valleys. Earliest spring record, March 20 (twice); average, March 25. Latest autumn record, October 17. I have seen a family party of them eating the berries of the poke weed which are here supposed to be poisonous.

94. **Tyrannus tyrannus.** KINGBIRD.—Not very common in the county but a few pairs breed here. Earliest record, April 22; average, April 26. A nest with bird sitting on it, May 16.

95. **Tyrannus melancholicus couchi.** COUCH'S KINGBIRD.—A male shot at the ranch, September 11, 1908, extends greatly the known range of the species in Texas.

96. **Tyrannus verticalis.** ARKANSAS KINGBIRD.—Not uncommon in migration, spring and autumn, though we are at the extreme eastern

limit of the range of the species. Earliest spring record, April 24; latest, June 6. Earliest autumn record, August 30; latest, September 22. It is a very silent bird here and although seen as late as June 6, I do not think it has bred here, at least not near the ranch.

97. **Myiarchus crinitus**. CRESTED FLYCATCHER.—Fairly common in spring and probably breeds.

98. **Myiarchus cinerascens**. ASH-THROATED FLYCATCHER.—Fairly common breeder.

99. **Sayornis phoebe**. PHOEBE.—Common in winter and several pairs usually breed in the bluffs along the creeks. We are close to the extreme southwestern breeding range of the species in Texas.

100. **Sayornis sayus**. SAY'S PHOEBE.—Not common; I have only seven records for it: February 26, March 5, April 7, 13 and 26, and December 11 and 25.

101. **Nuttallornis borealis**. OLIVE-SIDED FLYCATCHER.—Only one record, August 19, 1903.

102. **Myiochanes virens**. WOOD PEWEE.—Common breeder; earliest spring record, April 9; next earliest, April 14; average, April 20.

103. **Empidonax virescens**. ACADIAN FLYCATCHER.—Not very common, but breeds regularly near the ranch. Earliest spring record, April 12; next earliest, April 21; average, April 30. Nests on a horizontal fork of a small branch, a rather neat little saucer-shaped arrangement; one can often see the eggs through the bottom of it.

104. **Pyrocephalus rubinus mexicanus**. VERMILION FLYCATCHER.—I saw a pair of these birds and their nest at a neighbor's house on Turtle Creek on June 8, 1903, and was told that they had already raised one brood that year. They were building again in the same live-oak tree on April 14, 1904. The male bird has a nice little song and sometimes sings when on the wing. This is the most northern breeding record for Texas.

105. **Otocoris alpestris leucolæma**. DESERT HORNED LARK.—I have sometimes seen Horned Larks on an open piece of ground just below Kerrville on the Guadalupe. They are probably not uncommon along the river valley.

106. **Cyanocitta cristata**. BLUE JAY.—Several flocks of Blue Jays visited us in January and February, 1887. Again in October and November, 1896, they were quite common and remained that winter until as late as April 25, 1897. I have never seen the bird here except on those two occasions.

107. **Aphelocoma texana**. TEXAS JAY.—The type of this species is a bird I sent to Mr. Attwater, killed at the head of the Nueces River when I was deer hunting. These birds are fairly common on the rough hilly land west of Kerrville and breed at the ranch: they nest late in March and early in April and lay 3 to 5 eggs, usually 4.

108. **Corvus cryptoleucus**. WHITE-NECKED RAVEN.—Formerly very common in Kerr County but now quite a rarity. I have counted as many as fifteen at the carcass of a deer that I had killed the day before.

I do not know whether the Crows had anything to do with the fact that the Ravens left us, but the year that the Crows appeared for the first time on Turtle Creek was the last year that the Ravens bred there. Kerr County marked their extreme eastern breeding range in Texas.

109. **Corvus brachyrhynchos.** CROW.—Crows were not uncommon along the Pedernales River in Gillespie County in the early eighties, but I never saw them along the Guadalupe until February, 1897, when a pair or two took up their abode near Kerrville; since then they have increased and several pairs breed in the neighborhood. They first nested on Turtle Creek in 1898. The last pair of White-necked Ravens nested there in 1897.

110. **Molothrus ater.** COWBIRD.—The form which occurs here commonly in migration and rarely in winter is certainly the eastern bird. Whether our breeding bird is this form or the Dwarf Cowbird (*M. a. obscurus*) has not yet been determined.

111. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.—Common migrant in April; occasional in the autumn.

112. **Agelaius phoeniceus.** RED-WINGED BLACKBIRD.—Occasionally in large flocks in February, March and April; sometimes I do not see it all the winter. I know of no nesting place nearer than San Antonio.

113. **Sturnella magna.** MEADOWLARK.—Common winter resident.

114. **Sturnella neglecta.** WESTERN MEADOWLARK.—Common in winter, but I have not known them to nest here.

115. **Icterus spurius.** ORCHARD ORIOLE.—Quite common breeder; earliest record, April 13; average, April 17. One of the most regular of our birds in its times of arrival.

116. **Icterus galbula.** BALTIMORE ORIOLE.—A fine male and three females or young birds came to the ranch on September 9, 1908. I have only seen it here on one other occasion.

117. **Icterus bullocki.** BULLOCK'S ORIOLE.—Not uncommon among the mesquites in the northwest corner of the county, and breeds there; have seen it only twice in the neighborhood of Kerrville.

118. **Euphagus cyanocephalus.** BREWER'S BLACKBIRD.—Common in winter.

119. **Hesperiphona vespertina** subsp.? EVENING GROSBEAK.—Seen once, January 31, 1905. This is the only record of the species for Texas and unfortunately there can be no certainty as to the subspecies. But since the known range of the western form, *montana*, is much nearer than the district where the eastern form usually winters, the probabilities are strongly in favor of the western bird.

120. **Astragalinus tristis.** GOLDFINCH.—Common in winter; leaves us just as the males begin to put on their summer plumage, usually about the first week in March.

121. **Astragalinus psaltria.** ARKANSAS GOLDFINCH.—Nests quite commonly in the pecan and walnut trees at the ranch, often quite close to the house: there are usually four eggs in the nests somewhere about the first week in June. Earliest spring record, March 29; next earliest,

April 18; average, April 28. Leaves about middle of October; latest record, November 9.

122. **Spinus pinus**. SISKIN.—Occasional in flocks in winter and spring, November 28 to May 29.

123. **Calcarius ornatus**. CHESTNUT-COLLARED LONGSPUR.—Fairly common in the wider valleys and open places on the divide in winter and spring.

124. **Poecetes gramineus confinis**. WESTERN VESPER SPARROW.—A common bird by the roadsides in winter; arrives about October 22.

125. **Passerculus sandwichensis alaudinus**. WESTERN SAVANNAH SPARROW.—Not at all common migrant at the ranch.

126. **Ammodramus savannarum bimaculatus**. WESTERN GRASSHOPPER SPARROW.—Probably fairly common in the open parts of the county in winter. I have shot them on two or three occasions when quail hunting; a young dog will nearly always point them.

127. **Chondestes grammacus strigatus**. WESTERN LARK SPARROW.—Very common in summer and occasionally seen in midwinter. Average date of arrival, March 12.

128. **Zonotrichia querula**. HARRIS'S SPARROW.—Occasional in winter but not common.

129. **Zonotrichia leucophrys**. WHITE-CROWNED SPARROW.—Common in spring. Have seen it on October 29 and in February. It is commonest in March. Latest seen April 24.

130. **Zonotrichia albicollis**. WHITE-THROATED SPARROW.—My only record is that of a pair seen March 16, 1907.

131. **Spizella passerina**. CHIPPING SPARROW.—Common in winter and a few pairs regularly breed in the Kerrville neighborhood. Have twice taken eggs at the ranch. The breeding bird is the eastern form, here finding its western limit in Texas. The winter birds undoubtedly include individuals of the Western Chipping Sparrow (*Spizella passerina arizonæ*).

132. **Spizella pallida**. CLAY-COLORED SPARROW.—Small flocks frequently visit us during March and April. Have seen it as late as April 24.

133. **Spizella pusilla**. FIELD SPARROW.—Common resident.

134. **Junco hyemalis**. SLATE-COLORED JUNCO.—Snowbirds are common in winter. Earliest date of arrival, October 30; average, November 8.

135. **Amphispiza bilineata**. BLACK-THROATED SPARROW.—Not common: I have not seen it in the Guadalupe valley, but it breeds in the mesquite flats on the heads of the Llano River, in the northwestern corner of the County.

136. **Peucaea cassini**. CASSIN'S SPARROW.—A few pairs used to nest in the Turtle Creek valley, but have not done so for the last year or two. The species is fairly common in summer on the opener parts of the Guadalupe-Llano divide. Its cheery little song is unlike anything else, and once heard can never be forgotten.

137. **Aimophila ruficeps eremœca.** ROCK SPARROW.—Rather common resident of the brush covered hills. Eggs three to five; have found them early in April and late in June, so the bird probably raises two broods.

138. **Melospiza melodia.** SONG SPARROW.—Not very common. A few winter along the little creek that flows by the ranch house.

139. **Melospiza lincolni.** LINCOLN'S SPARROW.—A common winter resident at the ranch. Earliest autumn record, September 23; average, October 10. Have seen it as late as May 15. It sometimes sings in a tentative sort of way just before leaving us.

140. **Passerella iliaca.** FOX SPARROW.—A not very common winter visitor in the valley thickets.

141. **Pipilo maculatus arcticus.** ARCTIC TOWHEE.—A common winter resident in the brush, both on the hills and in the valleys. Earliest autumn record, October 6; average, about October 15; stays with us until the middle of May.

142. **Pipilo fuscus mesoleucus.** CAÑON TOWHEE.—Rather rare in the neighborhood of Kerrville but breeds, at least occasionally, on Turtle Creek; quite common in the northwestern corner of Kerr County reaching here its most eastern extension in Texas.

143. **Cardinalis cardinalis canicaudus.** GRAY-TAILED CARDINAL.—Quite common resident.

144. **Zamelodia melanocephala.** BLACK-HEADED GROSBEAK.—Only seen once; a fine male, May 6, 1907, the most southeastern record for Texas.

145. **Guiraca cærulea lazula.** WESTERN BLUE GROSBEAK.—Quite common in summer and breeds at the ranch. Earliest spring record, April 12; average, April 18. I fancy the males arrive a few days ahead of the females; have seen a flock of five males at least a week before a female appeared.

146. **Passerina cyanea.** INDIGO BUNTING.—Fairly common and breeds at the ranch. Earliest spring record, April 10; latest, April 30; average, April 20. It finds here the southwestern limit of its breeding range.

147. **Passerina amoena.** LAZULI BUNTING.—Rather rare. A few pairs have occasionally bred at the ranch. Earliest spring record, April 23; average, April 24. Nests with four eggs May 15 and May 26. This is the most eastern breeding record for Texas though it has been taken in migration east nearly to San Antonio.

148. **Passerina ciris.** PAINTED BUNTING.—Common at Kerrville and along the Guadalupe Valley. Not quite so common at the ranch. Earliest record, April 23. It is one of the earliest birds to leave us in the fall.

149. **Spiza americana.** DICKCISSEL.—Fairly common during the spring migration. If we have plenty of spring rains it stays with us a few weeks; if dry it passes on overhead. Earliest record, April 23; latest, May 23. Probably used to breed here formerly.

150. **Calamospiza melanocorys.** LARK BUNTING.— Not uncommon in the valleys and open places in the spring. Have seen it as late as May 3.

151. **Piranga rubra.** SUMMER TANAGER.— Common breeder. Very regular in its appearance in the spring. I have seventeen records of spring arrival, varying from April 11 (four times), to April 15 (three times); average, April 12. Many years ago a boy at the ranch amused himself by killing these birds that were decimating the bees belonging to a few bee-stands in the yard; he shot some six or seven birds and among them one female considerably larger than any of the others.

152. **Progne subis.** PURPLE MARTIN.— Not so common as it was years ago. Twenty years' records, earliest, February 11; average, February 20. Leaves as a rule during late July or the first week in August, latest seen August 25.

153. **Petrochelidon lunifrons.** CLIFF SWALLOW.— Breeds in large colonies on many of the bluffs along the rivers and creeks and tries to build on the rock buildings in Kerrville but meets with no encouragement. I see them at their breeding places about the middle of April; they leave us early in August.

154. **Hirundo erythrogastra.** BARN SWALLOW.— Rather rare; I do not often see it; quite a number of years ago a pair nested under the porch of a house in Kerrville.

155. **Bombycilla cedrorum.** CEDAR WAXWING.— Quite common in winter and usually stays around Kerrville until it has eaten all the mulberries in the gardens there. Usually arrives about November 1; earliest record, October 19; latest, May 23.

156. **Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE.— Not uncommon in winter. Breeds on the divide between Guadalupe and Pedernales rivers. Have not found it breeding south of the Guadalupe River. It comes to us early in August.

157. **Vireosylva olivacea.** RED-EYED VIREO.— Common breeder. Earliest spring record, March 25; next earliest, March 30; average, April 12.

158. **Lanivireo flavifrons.** YELLOW-THROATED VIREO.— Not uncommon; breeds at the ranch. Earliest record, March 15; average March 24. This is at the extreme southwestern limit of the breeding range.

159. **Lanivireo solitarius.** BLUE-HEADED VIREO.— Rare in spring migration; April 20 and May 9.

160. **Vireo atricapillus.** BLACK-CAPPED VIREO.— Not uncommon; several pairs usually breed at the ranch. I fancy, however, that the bird is not so common as it was a few years ago. Earliest record, March 19; average, March 24. I have several times found the nests early in May, containing three eggs as a rule, and situated 2-5 feet from the ground.

161. **Vireo griseus.** WHITE-EYED VIREO.— Very common breeder. Earliest record March 6; average date of arrival, March 16.

162. **Vireo belli.** BELL'S VIREO.— Rather rare in the neighborhood of Kerrville, but quite common in the mesquites on the banks of the

Llano River in the northwestern corner of the County. I have records at the ranch for April 19 and 28, May 5 and August 20.

163. **Mniotilta varia.** BLACK AND WHITE WARBLER.—Not uncommon and breeds with us; I see it feeding young every year — one of these times was June 10, 1897 — but have not found a nest. Earliest record, March 5; average, March 11. Latest record September 26.

164. **Vermivora rubricapilla.** NASHVILLE WARBLER.—Not uncommon in late April and early May.

165. **Vermivora celata.** ORANGE-CROWNED WARBLER.—Flocks of small warblers, principally of this species, pass through the woods from late in March until the end of April. I have several times picked up dead ones after a hail storm.

166. **Compsothlypis americana usneæ.** NORTHERN PARULA WARBLER.—A common summer resident at the ranch: nests in hanging tufts of tree moss. Earliest record, March 9; next earliest, March 15; average, March 21. On April 22, 1907, I picked up three dead young birds under a nest, after a cold rain; they would have been able to fly in a few days.

167. **Dendroica æstiva.** YELLOW WARBLER.—Fairly common in migration, both spring and autumn. Earliest record, April 18; next earliest, May 2; average, May 5. Have seen it back again as early as August 18.

168. **Dendroica coronata.** MYRTLE WARBLER.—Frequently spends the winter with us: leaves at the end of April, by which time it is in full summer plumage and may often be heard singing. Latest record, April 28.

169. **Dendroica dominica albilora.** SYCAMORE WARBLER.—Frequents the tall cypress trees of the Guadalupe valley, and breeds there in some numbers, though this is at the extreme southwestern limit of the breeding range. Earliest spring record, March 18; average, March 22.

170. **Dendroica chrysoparia.** GOLDEN-CHEEKED WARBLER.—About as common as any warbler in the county. Earliest spring record, March 5; average, March 12. Usually has eggs in the nests during the first week in April; have seen young birds out of the nest by April 22: have also found eggs in May, so the bird may be double-brooded. Nests usually perhaps in cedar, but have often found them in oak and walnut trees. Early in July the woods are full of family parties; as a rule they are all gone before August 1. Have only seen the bird two or three times after that date. Latest records, August 20 (once), August 10 (once).

171. **Dendroica virens.** BLACK-THROATED GREEN WARBLER.—Rather rare; the few I have seen have been observed between May 7 and 15.

172. **Seiurus noveboracensis notabilis.** GRINNELL'S WATER-THRUSH.—Once at the ranch, on May 10, 1895.

173. **Seiurus motacilla.** LOUISIANA WATER-THRUSH.—Not common migrant. Have seen it March 18–26, also May 3, and two or three times in the autumn.

174. **Oporornis formosus.** KENTUCKY WARBLER.—Rather com-

mon in the river and creek bottoms. Earliest spring record, April 10 (twice); average, April 15. Have found the nest on several occasions, one with four fresh eggs on May 7. This is the most southwestern breeding record of the species.

175. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.—Not very uncommon in migration; have seen it from April 29 to May 15.

176. **Icteria virens.** YELLOW-BREASTED CHAT.—Very common all the summer. Earliest record, April 9 (twice); average, April 13. Earliest nest with fresh eggs, May 6. Reaches here the western limit of its range in Texas.

177. **Setophaga ruticilla.** REDSTART.—Rare, at the ranch; May 2 and September 15 and 26 are my only dates.

178. **Anthus rubescens.** PIPIT.—Common in the fields all the winter.

179. **Oreoscoptes montanus.** SAGE THRASHER.—See a few every winter and at times they are quite common.

180. **Mimus polyglottos leucopterus.** WESTERN MOCKINGBIRD.—Common all the year.

181. **Dumetella carolinensis.** CATBIRD.—Only seen twice by me, September 8 and October 17. Mr. Vernon Bailey saw one here on May 5, 1899.

182. **Toxostoma rufum.** BROWN THRASHER.—Only seen twice; February 10 and March 5, 1899: on the latter occasion I saw three birds together. This is the most southwestern record of the species.

183. **Salpinctes obsoletus.** ROCK WREN.—Not very common, but sometimes breeds at the ranch.

184. **Catherpes mexicanus conspersus.** CAÑON WREN.—Common along the bluffs of the river and creeks, and occasionally seen round the rock buildings in Kerrville. For two years a pair lived with us in the ranch house and became very tame, hopping about the floor and even singing on the table while we were in the room. They nested over one of the windows.

185. **Thryothorus ludovicianus.** CAROLINA WREN.—Common resident. This bird also has nested and reared its young in the house on two or three occasions.

186. **Thryomanes bewicki cryptus.** TEXAS WREN.—Another very common bird; we have a nest or two every year under the "gallery." I have twice found nests built in the skull of a dead cow.

187. **Troglodytes ædon parkmani.** WESTERN HOUSE WREN.—Occasional in winter and spring. It does not breed with us.

188. **Telmatodytes palustris iliacus.** PRAIRIE MARSH WREN.—Some years ago I frequently saw some of these birds in a rushy piece of ground on Turtle Creek. The rushes have gone and the birds with them. I have seen them on Feb. 12 and May 4. I do not think that they bred there.

189. **Certhia familiaris americana.** BROWN CREEPER.—Not very common. I see a bird or two nearly every winter.

190. **Sitta carolinensis**. WHITE-BREASTED NUTHATCH.—The bird is not common here, but I have seen it when on hunting trips in November among the post oak trees at the head of Turtle Creek and along the Medina-Guadalupe divide.

191. **Bæolophus atricristatus sennetti**. SENNETT'S TITMOUSE.—Quite common resident.

192. **Penthestes carolinensis agilis**. PLUMBEOUS CHICKADEE.—Common resident. This is nearly its extreme southwestern limit.

193. **Auriparus flaviceps**. VERDIN.—Not seen at Kerrville, but have seen it and its nest close to the line between Kerr and Kimble counties, northwest from Kerrville, where it finds the northern limit of its range.

194. **Regulus satrapa**. GOLDEN-CROWNED KINGLET.—Not common, but occasionally seen in small flocks in winter.

195. **Regulus calendula**. RUBY-CROWNED KINGLET.—Common in winter. Earliest record, October 2. Stays with us until early in May. I never saw this bird in small flocks like *satrapa*, but always singly or in pairs.

196. **Poliophtila cærulea**. BLUE-GRAY GNATCATCHER.—Common and breeds throughout the county. Earliest date of arrival, March 13; average, March 17. They begin nesting almost as soon as they get here; I have found nests in course of construction on March 30 and with eggs in them as early as April 4.

197. **Myadestes townsendi**. TOWNSEND'S SOLITAIRE.—A rare bird here as a rule, and I had seen only two or three specimens of it until 1905, when it was quite common at the ranch from January 26 until April 25. This was the first record of their being seen in numbers so far south in Texas. There was a great quantity of cedar mast that year. They appeared here again on November 2, 1910, and are fairly common at the time of writing this note, January 25, 1911. There are plenty of cedar berries again this season.

198. **Hylocichla guttata** subsp.? HERMIT THRUSH.—At least two and probably three subspecies of this bird are common here in winter.

199. **Planesticus migratorius**. ROBIN.—Common in winter especially when there are many berries. A few winters ago these birds did good service by picking up the army worms that were destroying the young grain crops. They usually arrive about the first of November and stay until April; latest date, April 21. They sing here all the winter when the weather is mild.

200. **Sialia sialis**. BLUEBIRD.—Common and breeds here; nests with eggs early in April; much more numerous in winter than in summer.

201. **Sialia currucoides**. MOUNTAIN BLUEBIRD.—About three times since I have been living here this bird has been fairly common in the winter, otherwise we never see it: it goes about in larger flocks than *sialis* does. We are here near the eastern limit of the range of the species in Texas.

202. **Passer domesticus.** ENGLISH SPARROW.— In 1882 we saw the English Sparrows at Galveston and Houston. They came to Kerrville on December 12, 1897, and came to stay. They nested at the ranch for the first time in 1909, but were often here in the winter long before then.

A DROP OF FOUR THOUSAND FEET.

BY FLORENCE MERRIAM BAILEY.

OUR last mountain camp of the field season of 1906 was at 8500 feet in the New Mexico Mogollons. Even in New Mexico an 8500 foot camp after the middle of October is apt to be a trifle chilly, so we pitched our tents on the warm slope of the cañon under the yellow pines, laying logs against the outside walls of the tents to keep out the wind, and noting with satisfaction that there was abundant fuel close at hand for big camp fires. A few rods below the tents Willow Creek — a clear sparkling mountain brook that heads the middle fork of the Gila — ran at the foot of a handsome fir and spruce wall whose crest at sunset caught the last yellow light slanting across the forest.

In the morning when the sun reached the trees in front of the tent small voices would be heard and a flock of hardy mountaineers — Chickadees, Pygmy Nuthatches, and Brown Creepers — would fly in filling the air with their gentle talk. Beyond camp up the narrow winding gulch of Willow Creek along which was kept a line of small mammal traps, in the sunny bends of a morning Chestnut-backed Bluebirds and Audubon Warblers would fly before us and flocks of Juncos rise with a startled twitter and a flash of white outer tail feathers. Some of the Juncos when flying showed a band of pink along the sides and, as was proved when our specimens reached the Biological Survey, representatives of nearly every resident, migrant, or wandering Junco of those mountains, including the Slate-colored, Intermediate, Montana, Pink-sided, Ridgway's, and the Gray-headed, had gathered in that particular gulch or its neighborhood on the